

IN THE CLAIMS

The status of each claim in the present application is listed below.

Claims 1-30: (Canceled).

31. (Currently Amended): An alkyldiketene-containing aqueous polymer dispersion, obtained by aqueous emulsion polymerization of at least one hydrophobic monoethylenically unsaturated monomer in the presence of at least one alkyldiketene, wherein the at least one hydrophobic monoethylenically unsaturated monomer and the at least one alkyldiketene have an average particle diameter of 10 [[5]] to 500 nm.

32. (Previously Presented): The polymer dispersion of Claim 31, obtained by emulsifying an organic phase comprising the at least one alkyldiketene and the at least one monoethylenically unsaturated hydrophobic monomer and polymerizing the monomers.

33. (Previously Presented): The polymer dispersion of Claim 31, obtained by emulsifying an organic phase comprising the at least one alkyldiketene and the at least one monoethylenically unsaturated hydrophobic monomer in solution, in the presence of a surface-active agent in an aqueous phase with the aid of a mechanical emulsification process, at least one of the organic phase and the aqueous phase additionally comprising a free radical polymerization initiator or a polymerization initiator, and then polymerizing the monomers.

34. (Previously Presented): The polymer dispersion of Claim 32, wherein the organic phase is emulsified in the aqueous phase by the action of ultrasound or with the aid of a high pressure homogenizer.

35. (Currently Amended): The polymer dispersion of Claim 32, wherein the organic phase further comprises an additional nonpolymerizable hydrophobic compound.

36. (Currently Amended): The polymer dispersion of Claim 32, wherein the organic phase further comprises a member ~~water insoluble monomer which~~ is selected from the group consisting of vinyl esters of C₁₂-C₂₂-carboxylic acids, vinyl ethers of C₁₂-C₃₀-alcohols and ~~vinyl ethers of C₁₂-C₂₂-alkyl acrylates.~~

37. (Currently Amended): The polymer dispersion of Claim 32, wherein the organic phase comprises a solution, a binary or polynary mixture and/or a dispersion, wherein the solution, a binary or polynary mixture and/or a dispersion ~~which~~ comprises

- at least one C₁₄- to C₂₂-alkyldiketene,
- at least one monomer selected from the group consisting of styrene, methylstyrene, C₂- to C₂₈-olefins, esters of monoethylenically unsaturated carboxylic acids of 3 to 5 carbon atoms and monohydric alcohols of 1 to 22 carbon atoms, vinyl esters of C₁- to C₁₈-carboxylic acids, acrylonitrile and methacrylonitrile, and
- at least one hydrocarbon, an alcohol of 10 to 24 carbon atoms, a hydrophobic polymer having a molar mass Mw of <10 000, a tetraalkylsilane, a vinyl ester of C₁₂-C₂₂-carboxylic acids, a vinyl ether of C₁₂-C₃₀-alcohols, a C₁₂-C₂₂-alkyl acrylate and/or a mixture thereof.

38. (Previously Presented): The polymer dispersion of Claim 32, wherein the organic phase comprises a solution which comprises

- stearyldiketene, palmityldiketene and/or behenyldiketene,
- styrene, n-butyl acrylate, sec-butyl acrylate, tert-butyl acrylate, 2-ethylhexyl acrylate, methyl methacrylate, n-butyl methacrylate, acrylonitrile, methacrylonitrile and/or vinyl acetate and
- hexadecane, olive oil, polystyrene having a molar mass Mw of from 500 to 5000, siloxanes having a molar mass Mw of from 500 to 5000, cetyl alcohol, stearyl alcohol, palmityl alcohol, behenyl alcohol, vinyl esters of C₁₂-C₂₂-carboxylic acids, vinyl ethers of C₁₂-C₃₀-alcohols and/or C₁₂-C₂₂-alkyl acrylates.

39. (Previously Presented): The polymer dispersion of Claim 32, wherein the organic phase comprises a solution which comprises

- stearyldiketene and/or palmityldiketene and
- styrene, n-butyl acrylate, tert-butyl acrylate and/or acrylonitrile.

40. (Previously Presented): The polymer dispersion of Claim 32, wherein the organic phase further comprises hydrophilic monomers in amounts such that the resulting copolymers have a solubility of not more than 10, g/l in water at 20°C and a pH of 2.

41. (Previously Presented): The polymer dispersion of Claim 40, wherein at least one compound selected from the group consisting of the ethylenically unsaturated carboxylic acids of 3 to 5 carbon atoms, acrylamide, methacrylamide, N-vinylformamide, vinyl ethers, 2-acrylamido-2-methylpropane-sulfonic acid, vinylsulfonic acid, styrenesulfonic acid,

sulfopropyl acrylate, sulfopropyl methacrylate, fumaric acid, maleic acid, itaconic acid, maleic anhydride, and mixtures thereof is used as the hydrophilic monomer.

42. (Previously Presented): The polymer dispersion of Claim 31, obtained by polymerization in the presence of at least one water-soluble and/or water-swellaable polysaccharide.

43. (Previously Presented): The polymer dispersion of Claim 42, obtained by mixing the emulsion with an aqueous solution which comprises at least one water-soluble and/or water-swellaable polysaccharide, and polymerizing the monomers of the emulsion in the presence of the water-soluble and/or water-swellaable polysaccharide.

44. (Previously Presented): A process for the preparation of an alkyldiketene-containing aqueous polymer dispersion, comprising aqueous emulsion polymerizing at least one hydrophobic monoethylenically unsaturated monomer in the presence of at least one alkyldiketene, wherein the at least one hydrophobic monoethylenically unsaturated monomer and the at least one alkyldiketene have a particle size of 5 to 500 nm.

45. (Previously Presented): The process of Claim 44, comprising emulsifying an organic phase comprising the at least one alkyldiketene and the at least one monoethylenically unsaturated hydrophobic monomers and polymerizing the monomers.

46. (Previously Presented): The process of Claim 45, wherein the organic phase comprises

- at least one alkyl diketene and
- at least one monoethylenically unsaturated hydrophobic monomer

and is emulsified in the presence of a surface-active agent in an aqueous phase with the aid of a mechanical emulsification process, at least one of the organic phase and the aqueous phase additionally comprising a free radical polymerization initiator or a polymerization initiator, and then,

the monomers are polymerized.

47. (Currently Amended): The process of Claim 45, wherein the organic phase further comprises at least one additional nonpolymerizable hydrophobic compound.

48. (Currently Amended): The process of Claim 45, wherein the organic phase further comprises a member ~~water-insoluble monomer which~~ is selected from vinyl esters of C₁₂-C₂₂-carboxylic acids, vinyl ethers of C₁₂-C₃₀-alcohols and C₁₂-C₂₂-alkyl acrylates.

49. (Currently Amended): The process of Claim 45, wherein the organic phase comprises a solution, a binary or polynary mixture and/or a dispersion, wherein the solution, a binary or polynary mixture and/or a dispersion ~~which~~ comprises

- at least one C₁₄- to C₂₂-alkyl diketene and
- at least one monomer selected from the group consisting of styrene, methylstyrene, C₂- to C₂₈-olefins, esters of monoethylenically unsaturated carboxylic acids of 3 to 5 carbon atoms and monohydric alcohols of 1 to 22 carbon atoms, vinyl esters of C₁- to C₂₂-carboxylic acids, acrylonitrile and methacrylonitrile.

50. (Previously Presented): The process of Claim 45, wherein the organic phase comprises a solution which comprises

- stearyldiketene and/or palmityldiketene and
- styrene, n-butyl acrylate, tert-butyl acrylate and/or acrylonitrile.

51. (Previously Presented): The process of Claim 35 [[45]], wherein the organic phase comprises, as the nonpolymerizable hydrophobic compound, a hydrocarbon, an alcohol of 10 to 24 carbon atoms, a hydrophobic polymer having a molar mass M_w of $<10\,000$, a tetraalkylsilane and/or a mixture thereof.

52. (Previously Presented): The process of Claim 44, wherein the aqueous phase comprises a surface-active anionic compound.

53. (Currently Amended): The process of Claim 44, wherein the aqueous phase comprises, as a surface-active agent, sodium laurylsulfate, sodium dodecylsulfate, sodium hexadecylsulfate, sodium dioctylsulfosuccinate and/or at least one adduct of from 15 to 50 mol of ethylene oxide with 1 mol of a C_{12} - to C_{22} -alcohol.

54. (Previously Presented): The process of Claim 44, wherein the organic phase further comprises hydrophilic monomers in an amount such that the resulting copolymers have a solubility of not more than 10, g/l in water at 20°C and a pH of 2.

55. (Previously Presented): The process of Claim 54, wherein at least one compound selected from the group consisting of the ethylenically unsaturated carboxylic acids of 3 to 5 carbon atoms, acrylamide, methacrylamide, N-vinylformamide, vinyl ethers, 2-acrylamido-2-methylpropanesulfonic acid, vinylsulfonic acid, styrenesulfonic acid, sulfopropyl acrylate, sulfopropyl methacrylate, fumaric acid, maleic acid, itaconic acid, maleic anhydride, and mixtures thereof is used as the hydrophilic monomer.

56. (Previously Presented): The process of Claim 44, wherein the polymerization is carried out in the presence of at least one water-soluble and/or water-swelling polysaccharide.

57. (Previously Presented): The process of Claim 56, wherein the emulsion is mixed with an aqueous solution which comprises an aqueous starch and the mixture is polymerized in the presence of at least one polymerization initiator.

58. (Previously Presented): The process of Claim 57, wherein the emulsion is mixed with an aqueous solution which comprises a degraded starch in solution.

59. (Previously Presented): The process of Claim 57, wherein the emulsion is mixed continuously or batchwise with the aqueous solution of a water-soluble polysaccharide and polymerized.

60. (Previously Presented): The process of Claim 57, wherein the water-soluble polysaccharide used is a degraded starch.

61. (Previously Presented): A method for applying a composition on a surface, comprising:

applying the aqueous polymer dispersion of Claim 32 on an article,
wherein the article is paper, leather, natural fibers, natural textiles, manmade fibers, manmade textiles, or a mixture thereof.

62. (Previously Presented): The polymer dispersion of Claim 31, wherein the at least one hydrophobic monoethylenically unsaturated monomer and the at least one alkyldiketene have an average particle diameter of 50 to 500 nm.

63. (Previously Presented): The polymer dispersion of Claim 31, wherein the at least one hydrophobic monoethylenically unsaturated monomer and the at least one alkyldiketene have an average particle diameter of 50 to 200 nm.

64. (Previously Presented): The polymer dispersion of Claim 31, wherein the at least one hydrophobic monoethylenically unsaturated monomer and the at least one alkyldiketene have an average particle diameter of 50 to 100 nm.

65. (Previously Presented): The process of Claim 44, wherein the at least one hydrophobic monoethylenically unsaturated monomer and the at least one alkyldiketene have an average particle diameter of 50 to 500 nm.

66. (Previously Presented): The process of Claim 44, wherein the at least one hydrophobic monoethylenically unsaturated monomer and the at least one alkyldiketene have an average particle diameter of 50 to 200 nm.

67. (Previously Presented): The process of Claim 44, wherein the at least one hydrophobic monoethylenically unsaturated monomer and the at least one alkyldiketene have an average particle diameter of 50 to 100 nm.